To: Pierce, Maggie[Pierce.Maggie@epa.gov]
From: Laidlaw, Tina
Sent: Tue 8/18/2015 1:56:45 PM
Subject: FW: Water quality support for Gold King

Could be blasting... or not. Sounds like we need more details re. the location of the streams. From Craig's email, it sounded like it was upstream of the discharge and (I assumed) outside of the area where we'd expect impacts from blasting.

Thanks for looking at the data.

-----Original Message-----
From: Spence, Sandra
Sent: Monday, August 17, 2015 10:05 PM
To: Laidlaw, Tina
Subject: Re: Water quality support for Gold King

We can get Chlor a data if need be. It's hard not being there as it would be easy to tell if it is chemical vs biological just by looking.

Sent from my iPhone

> On Aug 17, 2015, at 10:00 PM, Laidlaw, Tina <Laidlaw.Tina@epa.gov> wrote:
>
> Sounds good. just keep in mind that concentrations could still be low with decent algae growth. Wouldn't be atypical for those systems.
>
> I'm working on the CO com strat. What are you doing? :)
>
> _____
> From: Spence, Sandra
> Sent: Monday, August 17, 2015 9:59 PM
> To: Laidlaw, Tina
> Subject: Re: Water quality support for Gold King
>
> Yeah I will ask him to send photos. We can look at the nutrient data torrid as well.
>
> Sent from my iPhone
>
>> On Aug 17, 2015, at 9:56 PM, Laidlaw, Tina <Laidlaw.Tina@epa.gov> wrote:
>>
>> Sandie,
>>
>> Actually, depending on the stream type, I wouldn't be surprised if they don't see decent algae growth. With low nutrient situations, I've seen a number of streams in Montana that produce decent amounts of algae, especially when the canopy opens and they are no longer shaded.
>>
>> Step 1 might be to ask Craig to send a picture and we could see if we think it's algae or not.
>>
>> Just a thought. Wanted to forward to you first for your consideration. Feel free to forward if you agree.
>>
>> Tina
>>
>> _____
>> From: Spence, Sandra
>> Sent: Monday, August 17, 2015 7:03 PM

>> To: Spence, Sandra
>> Cc: Myers, Craig; Hermann, Karl; Pierce, Maggie; Ostrander, David; Williams, Laura; Wharton, Steve; Laidlaw, Tina; Wall, Dan
>> Subject: Re: Water quality support for Gold King
>>
>> You could test for ferrous sulfate to determine if the green color is iron related. Measure dissolved iron and sulfate.
>>
>> Sent from my iPhone
>>
>>> On Aug 17, 2015, at 5:30 PM, Spence, Sandra <Spence.Sandra@epa.gov> wrote:
>>>
>>> Hi Craig, you can work with Karl Hermann, Maggie Pierce, and me in my group to start with. We have historic nutrient data from those locations that we can take a look and let you know if there are total phosphorus (TP) and total nitrogen (TN) levels that would suggest the potential for algal growth. We'll take a look tomorrow. You could take additional samples for TP, TN, possibly chlorophyll A to confirm an algae problem - or look at samples under the microscope to see if algae are present in the water column. Is the water a turbid green and/or are algae growing on the benthos?
>>>
>>> To me it doesn't seem likely you would be having a nutrient issue in these headwaters streams that would lead to an algae bloom, but I could be wrong. Most sources of nutrients include sewage treatment plants/septic tanks/cattle manure, etc. Would you expect any of those sources in the vicinity of the locations you mention?
>>>
>>> Alternatively, some metals including copper and iron (for example Fe+2) have oxidation states that make them appear green/blue green. So, if you have low dissolved oxygen water (low redox state) entering the streams (maybe as groundwater), you could have reduced metals in solution. Do you know the dissolved oxygen and pH readings in the green areas? Anyway, we'll take a look at the historic data trends in dissolved oxygen, pH, iron, and copper as well.
>>>
>>> -----Original Message-----
>>> From: Myers, Craig
>>> Sent: Monday, August 17, 2015 2:47 PM
>>> To: Spence, Sandra
>>> Cc: Ostrander, David; Williams, Laura
>>> Subject: Water quality support for Gold King
>>>
>>> David Ostrander suggested that I reach out to you. I need some expertise/support on water quality. The river is a shade of green, and appears to be green in all smaller headwaters streams (mineral, cement creeks, and the upper animas) above the portions of the animas effected by the discharge. We think it is at least partially due to algae and not due to actions at the mine, but are getting pressure from the community to understand the phenomenon. I would greatly appreciate knowing who to discuss this with on your staff. Thank you.
>>>
>>> Craig Myers
>>> Federal On-Scene Coordinator
>>> Incident Commander
>>>
>>> Sent from my iPhone